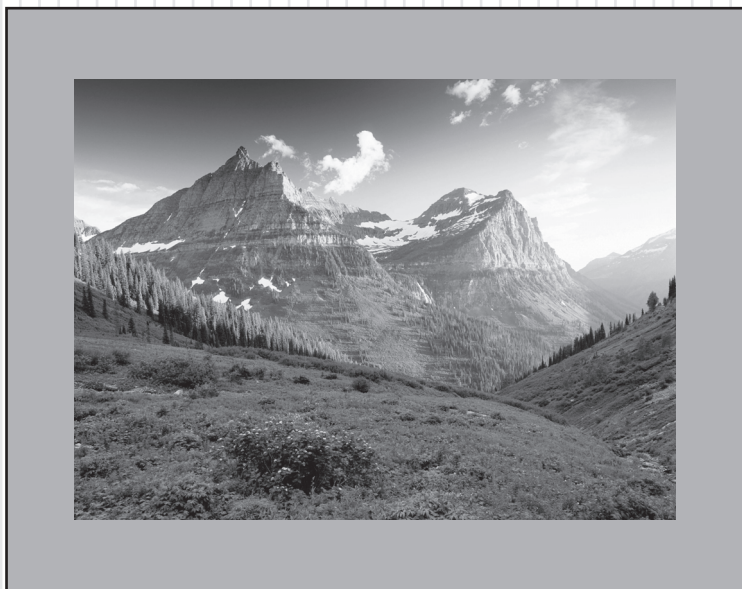


*Montana*  
*Comprehensive Assessment*  
*System (MontCAS, Phase 2)*  
*Criterion-Referenced Test (CRT)*

COMMON CONSTRUCTED-RESPONSE ITEM RELEASE  
MATHEMATICS, GRADE 7

2008



OFFICE OF PUBLIC INSTRUCTION

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# Mathematics

## Session 3 (Calculator)

**You may use a calculator during this session.**

**Write your answer in the space provided for it in your Student Response Booklet. Show all of your work.**

73. Luis fills a box with books that each have the same weight. The total weight,  $w$ , in pounds, of the box filled with  $b$  books is shown by the equation below.

$$w = 6b + 2$$

- What is the total weight, in pounds, of a box filled with 4 of the same books? Show or explain how you found your answer.
- On the grid in your Student Response Booklet, graph the equation for boxes filled with 2, 4, 6, 8, and 10 of these books. Be sure to label each axis.
- The maximum weight of a box that Luis can carry is 50 pounds. What is the greatest number of these books that Luis can put into a box and still be able to carry it? Show or explain how you found your answer.

## Scoring Guide

Score	Description
4	6 points
3	4 or 5 points
2	2 or 3 points (2 points only if there is at least 1 point from 2 different parts)
1	1 or 2 points OR Student demonstrates minimal ability using graphing or solving equations.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

## Scoring Notes

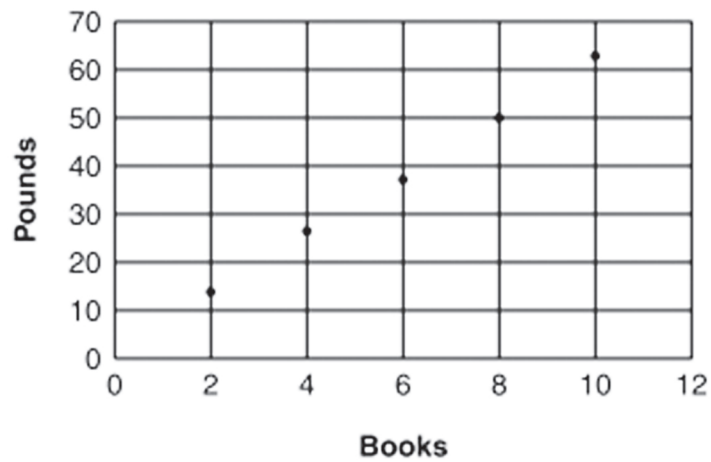
- Part a: 2 points for the correct answer, **26** (pounds), and work showing appropriate strategy  
OR  
1 point for finding the correct answer, no work given or explained  
or  
for showing or explaining a correct strategy
- Part b: 2 points for a correct graph with labels and appropriate scale  
OR  
1 point for graphing the equation with no more than 2 errors
- Part c: 2 points for the correct answer, **8**, and work showing appropriate strategy  
OR  
1 point for finding the correct answer, no work given or explained  
or  
for showing or explaining a correct strategy

**Sample Response:**

Part a:  $w = 6(4) + 2 = 26$

The weight of the crate with 4 books is 26 pounds.

Part b:



Part c:  $50 = 6b + 2$ ;  $48 = 6b$ ;  $b = 8$  books at most that can be carried

Score Point 4

Sample 1

A.  $W = 6b + 2$      $W = 6(4) + 2$      $W = 26$

$W = 24 + 2$   
I got my answer by substituting 4 in for b.

C. 8 because

$W = 6(8) + 2$

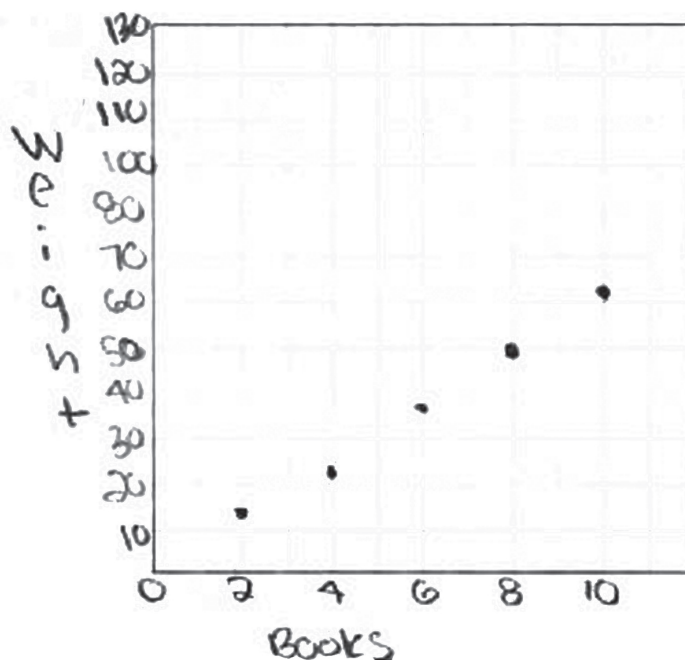
$W = 48 + 2$

$W = 50$

\* Win lbs.

(B)

$W = 6b + 2$



Score Point 4

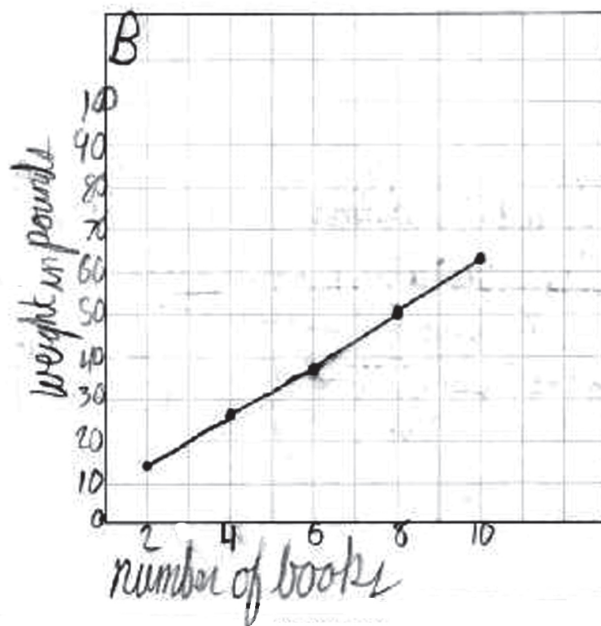
Sample 2

$$A(6.4) + 2 = 26 \quad \begin{matrix} b=4 \\ w=26 \end{matrix}$$

C

$$\frac{6b + 2}{6} = 50 \quad b=8 \quad \text{maximum number of books} = 8$$

$$\frac{48}{6} = 8$$



Score Point 3

Sample 1

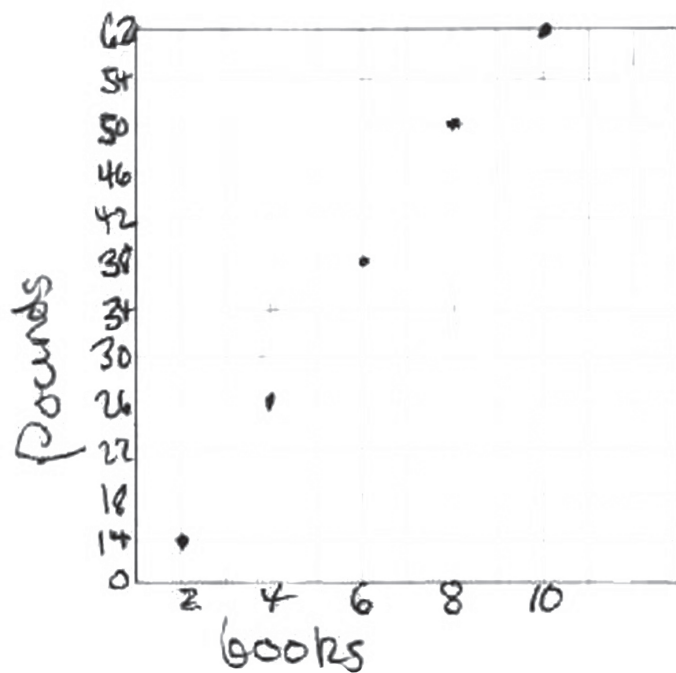
$$W = 6b + 2$$

$$W = 6 \times 4 + 2$$

$$W = 24 + 2$$

$$W = 26 \text{ pounds}$$

Luis can carry  
8 books



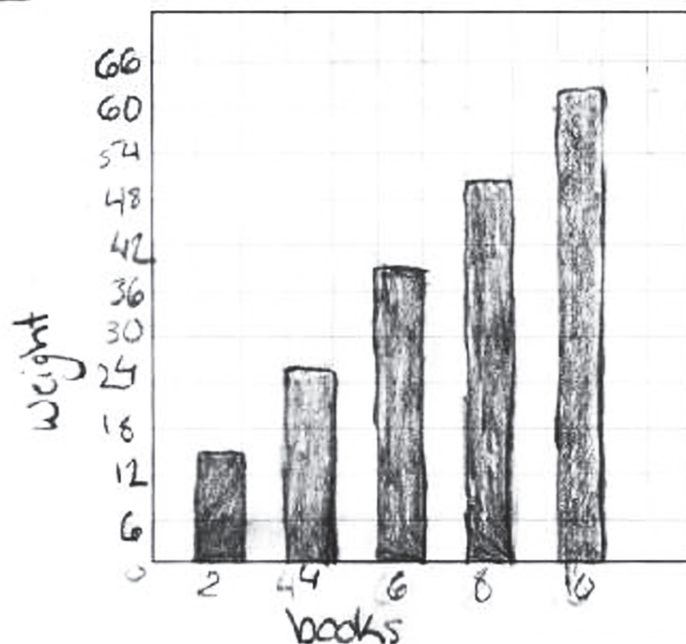


Score Point 3

Sample 2

a.  $w = 6 \times 4 + 2$  the box would weigh 26 lbs.  
 $w = 26$

c.  $50 = 6b + 2$  51 books  
 $50 \div 6 = 8.3$   
 $50 = 6 \times 8.3 + 2$



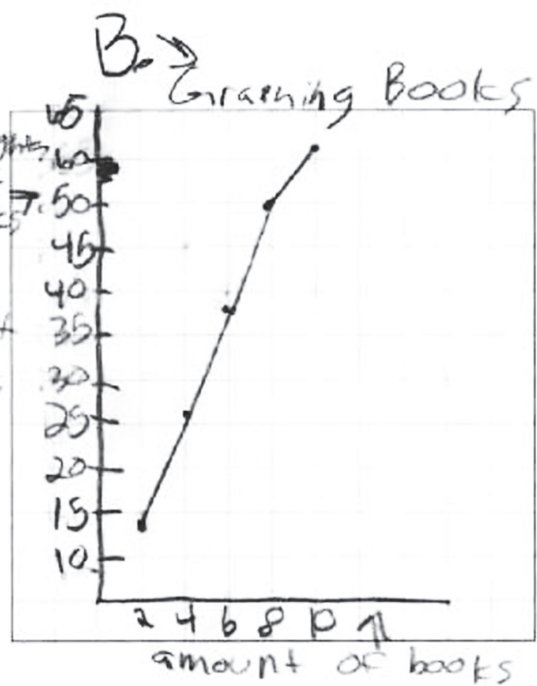
Score Point 3

Sample 3

$$\begin{array}{r} 66 \text{ A} \\ \times 4 \\ + 2 \\ \hline 266 \text{ pounds} \end{array}$$

C. The maximum amount

is 8 books because weights of books  
When you do the process  $8 \times 6 + 2 = 50$  pounds  
So then the total amount is 50 pounds.  $50 \text{ lb.} = 8 \text{ books}$



A.  $W = 6b + 2$   
 $\swarrow \quad \searrow$   
 $6 \text{ lb each} \times 4 = 24 + 2 = 26$

C.  $6 \times 8 = 48$   
 About 8 books

		y	
x	3. 1 book	= 12 lb	1 book
	1 book		1 book
	1 book	$4 \times 6 =$	1 book
	1 book	$= 24 \text{ lb}$	1 book
	1 book		1 book
8 books		10 books	
$8 \times 6 = 48$		$10 \times 6 = 60$	
48 lb.		60 lb.	

Score Point 1

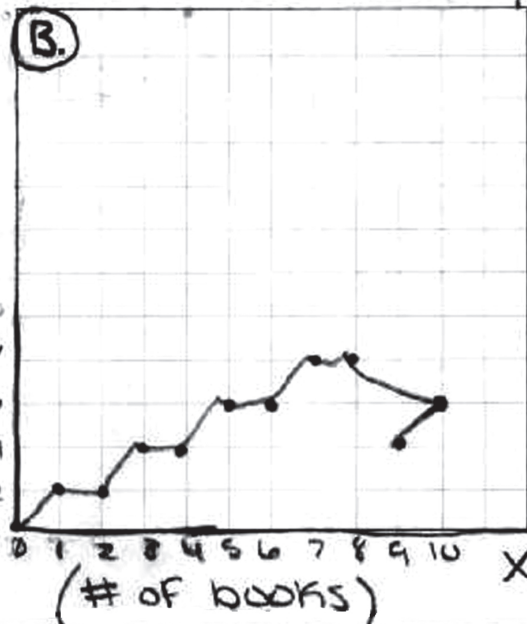
Sample 1

a.  $W = 60 + 2 = \boxed{26}$

$6 \times 4 = 24$

$24 + 2 = 26$

c. Luis could put 1 book in each box but if she wanted to carry 2 pounds extra she could use 2 books because each book weighs 26 pounds so she can carry 50 pounds so  $26 + 26 = 52$  so she can carry 2 books probably.



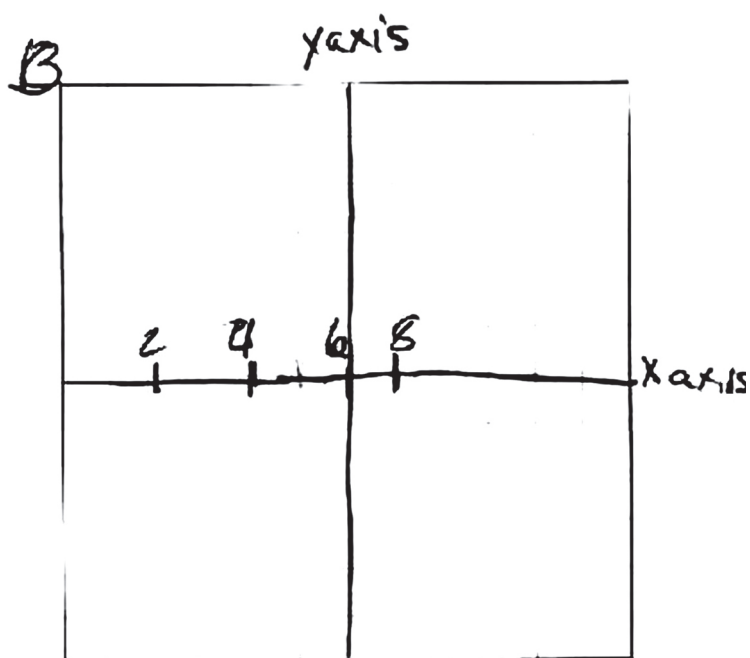
Score Point 1

Sample 2

A.  $W = 64 + 2$  The total wieght in pounds is 26 lb.  
 $W = 24 + 2$   
 $W = 26$

B.

C.  $W = 26$   
 $W = 26 - 4 = b$   
 $50 \cdot 6$  per book  
300 pounds



Score Point 0

Sample 1

$$W = 6b + 2$$

✓  
6 + 2  
8

With the y and x axis the pounds seemed to be 8 pounds per book.

x	2	4	6	8	10
y	4	8	12	16	20

16 pounds because you go  $4 \times 4 = 16$  The box  
A weights 16 pounds.

C The box weights 50 pounds  
Because it weights 50 pounds.

B

$$\begin{array}{l} 2 + 4 = 6 \\ 2 \times 4 = 8 \\ 10 - 6 = 4 \\ 10 - 8 = 2 \\ 6 + 4 = 10 \\ 10 \times 2 = 20 \\ 10 \times 4 = 40 \\ 10 \times 6 = 60 \\ 10 \times 8 = 80 \\ 10 \times 10 = 100 \end{array}$$